Claims

1. A polynucleotide vector comprising a promoter element of the Human Cytomegalovirus (HCMV) US3 gene, the promoter being operably linked to a region encoding a heterologous polypeptide which is foreign with respect to the HCMV US3 protein.

2. A polynucleotide vector as claimed in claim 1, comprising the minimal promoter element of the Human Cytomegalovirus (HCMV) US3 gene and a transcription regulatory element, the minimal promoter being operably linked to a region encoding a heterologous protein which is foreign with respect to HCMV US3.

3. A polynucleotide vector as claimed in claim 2 wherein said transcription regulatory element is an enhancer element.

4. A polynucleotide vector as claimed in claim 3, wherein the enhancer element is the R2 enhancer element from the HCMV US3 gene.

5. A polynucleotide vector as claimed in claim 4 wherein the R2 enhancer element is positioned immediately upstream of the minimal HCMV US3 promoter.

6. A polynucleotide vector as claimed in any one of claims 1 to 5, further comprising the HCMV MIE exon 1 gene sequence fused after the transcription initiation sequence of the US3 promoter.

7. A polynucleotide vector as claimed in claim 1 wherein the silencing effect of the R1 element within the US3 promoter has been reduced or abrogated.

8. An polynucleotide vector as claimed in claim 7 where the sequence of the US3 R1 element has been removed.

9. A polynucleotide vector comprising a promoter having the R2 enhancer element of the HCMV US3 gene promoter, and a minimal promoter element from a non-HCMV US3 gene promoter.

10. A polynucleotide vector as claimed in claim 9, wherein the minimal promoter element from a non-HCMV US3 gene promoter is the HCMV MIE gene minimal promoter element.

11. A polynucleotide vector according to any one of claims 1 to 10 which is plasmid vector.

12. A polynucleotide vector according to any one of claims 1 to 11 which is an expression vector for use in expression of a polypeptide in a eukaryotic host cell or organism.

13. A polynucleotide vector according to claim 12 wherein the polypeptide is an antigenic polypeptide.

14. A polynucleotide expression vector according to claim 13 for use as a vaccine or immunotherapeutic or as a component of a vaccine composition or immunotherapeutic composition.

15. A polynucleotide expression vector according to claim 12 for use in the in vitro expression of a therapeutic protein.

16. An immunogenic composition comprising a polynucleotide expression vector according to any one of claims 1 to 14 and a pharmaceutically acceptable adjuvant diluent, excipient or carrier.

17. An immunogenic composition according to claim 16 which carrier comprises a bead onto which the vector is coated.

18. Use of a polynucleotide expression vector according to any one of claims 1 to 14 in the manufacture of a vaccine, immunotherapeutic, vaccine composition or immunotherapeutic composition.

19. A method of vaccinating a human subject which comprises administering to said subject an effective amount of a vaccine or vaccine composition comprising an expression vector according to claim 14, or composition according to claim 16 or 17.

20. A host cell transformed or transfected with a polynucleotide expression vector according to claim 15.

21. A process for the production of a recombinant polypeptide in a eukaryotic host cell, comprising introducing an expression vector as claimed in claim 15 into the host cell under conditions which allow for expression of the polypeptide.

22. A transdermal powder delivery device for delivering DNA coated beads into the skin of a patient, the delivery device being loaded with beads onto which is coated a vector as claimed in any one of claims 1 to 14.

23. A polynucleotide vector as claimed in any one of claims 1 to 14 for use in gene therapy.